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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,091

06/20/2006

Shoichi Hirano

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03/20/2009

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EXAMINER

SYKES, ALTREV C

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,091	HIRANO ET AL.	
	Examiner	Art Unit	
	ALTREV C. SYKES	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20081114</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 26, 2009 has been entered.

Response to Arguments

2. Applicant's arguments filed January 26, 2009 have been fully considered but they are not persuasive.

Applicant argues, Soane et al. clearly teach that these multifunctional polymers are used to form *hydrophobic water repellent* coatings (col. 12, lines 42-44). Soane et al. teach that the surface of the cotton fabric is hydrophilic (col.13, lines 6-7). As disclosed in Fig. 4 of Soane et al., the hydrophilic region is used for combining the cotton with the multifunctional polymer, thereby the surface of the treated cotton having a hydrophilic surface. In other words, the hydrophilic regions of both the cotton and the multifunctional polymers are consumed by the Soane's treatment. *See* Fig. 4. The cotton treated by Soane et al. has become less hydrophilic than the cotton before treatment. Thus, the moisture absorption ratio has decreased, not increased, by the treatment of Soane et al.

Examiner is not persuaded. Soane et al. discloses the methods and compounds may be used to modify materials to improve properties such as resistance, grease repellency, soil resistance, permanent press properties, and quickness of drying. (See

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Abstract) Soane et al. further discloses altering the properties of the textile fiber materials to include detergent free washing. (See Col 5, lines 1-5 and Col 9, lines 22-26) Therefore, examiner has provided support to conclude that the polymers of Soane et al. would lead one of ordinary skill in the art to utilize the hydrophilic groups as taught by the prior art in order to provide a textile product having a hydrophilic surface. (See Col 5, lines 30-31)

Regarding applicant's reference to the moisture absorption ratio, examiner notes that the ratio is taught by the secondary reference of Hirano et al. (See Hirano [0016] and 7.1%-20% in [0010])

Applicant also argues the examiner's proposal to modify Soane et al. with Hirano et al. will destroy the Soane's invention since Soane et al. try to increase water repellency (col. 1, line 20 of Soane et al.). In the telephone interview, the Examiner indicated that such a modification is "possible." However, mere possibility of the combination does not motivate one skilled in the art to so modify. Because Soane's teaching is opposite to the Hirano's teaching, one skilled in the art rather considers that Soane's teaching is inapplicable to Hirano et al. Thus, the methods in claims 1, 17 and 20 are distinguishable from Soane et al.

Examiner is not persuaded. As set forth above, Soane et al. discloses that the methods and compounds may be used to modify the materials. (See Abstract) As such, Soane et al. and Hirano et al. are both directed to producing textile materials treated with polymers having grafted hydrophilic groups, the art is analogous. Additionally, in regards to the telephone conversation referenced by applicant, examiner finds the

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argument moot since the Soane et al. reference clearly creates a prima facie case of obviousness for modify the polymers as set forth in above. Further, Hirano et al. discloses a means for solving the problem of fabric yellowing includes making it hard to attach dirt. (See [0008]) As such, it is understood by examiner that while not only trying to provide an anti-yellowing function, the treatment was also capable of soil (dirt) repellent properties as well.

Finally, examiner notes the amendment to the claims. Claims 1-8 and 17-22 are now pending. The rejections are now as set forth below.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Soane et al. (US 6,379,753).

Regarding claims 1 and 2, Soane et al. discloses methods and compounds which may be used to modify cotton materials to improve properties such as resistance, grease repellency, soil resistance, permanent press properties, and quickness of drying. A variety of products may be obtained. (See Abstract) Soane et al. further discloses altering the properties of the textile fiber materials to include detergent free washing. (See Col 5, lines 1-5 and Col 9, lines 22-26) Soane et al. may comprise a synthetic backbone and hydrophilic groups grafted thereto. (See Col 5, lines 40-43) Soane et al. discloses the

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multifunctional polymers may include hydrophilic functional groups that are capable of interacting with the hydrophilic surface. (See Col 12, lines 52-55) Soane et al. discloses the graft copolymer is applied to the materials, such as cotton fabric (a hydrophilic surface) to produce a durable hydrophilic coating. (See Col 13, lines 4-6) Examiner therefore equates such treatment to the fabric to a hydrophilization treatment as claimed by applicant in claim 2. As such, examiner has reason to believe that the textile fabric of Soane would be exposed to grease, soil, and oily substances hence the suggestion of an grease repellency, soil resistance, and an oil repellent finish by Soane et al. Examiner notes that the detergent free washing function is clearly provided for by the prior art.

While Soane et al. discloses all of the claim limitations as set forth above the reference does not explicitly disclose the textile product having an increase in moisture absorption ratio. It is reasonable to presume that an increase in moisture absorption ratio is inherent to Soane et al. Support for said presumption is found in the use of like materials and/or like methods (i.e. detergent free washing function) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would inherently have been present once the Soane et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-8 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. (US 6,379,753) as applied to claim 1, above, and in view of Hirano et al. (JP 2000-017572)

Regarding claim 3, Soane et al. discloses all of the claim limitations as set forth above but the reference does not explicitly disclose the moisture absorption ratio of the cellulose fiber is adjusted to be 7.1% or more by the hydrophilization treatment.

Hirano et al. discloses a method to afford a cellulose-based fiber or cellulose-based textile product with excellent anti-yellowing function suitable for underwear by hydrophilization treatment of the above fiber or textile product. (See Abstract and [0016]) Hirano et al. discloses carrying out hydrophilization processing of the cellulose fiber or fiber product with 7.1% or more for the moisture absorption. (See [0016] and 7.1%-20% in [0010])

As Soane et al. and Hirano et al. are both directed to the treatment of cellulose fibers and fabrics, the art is analogous. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the range for the moisture absorption ratio as taught by Hirano in the method as disclosed by Soane et al. in order to further enhance the hydrophilic property of the final fiber products. (See [0010] and [0016])

Regarding claims 4-8 and 17-22, modified Soane et al. discloses all of the claim limitations as set forth above.

Regarding claim 4, Hirano et al. discloses a carboxyl group is introduced into the cellulose fiber by carboxymethylation. (See [0012] and [0024])

Regarding claim 5, Hirano et al. discloses heat treatment temperature can be 60 degrees C or more and can usually be less than 40°C although the concentration of the alkali-metal salt of the monochloroacetic acid should just set the conditions of processing liquid that the target workability is obtained suitably can be 100 or more g/l preferably. A sodium hydroxide can be used for the processing liquid in which a cellulosic fiber or a cellulosic fiber product is contacted at the hydroxide of alkali metal, and a concrete target. Reactivity tends to go up and usually needs to make NaOH concentration 20 or more g/l. (See [0031-0035])

Regarding claim 6, Hirano et al. discloses the carboxymethylation degree is adjusted to be 0.1 to 10% by mole. (See Hirano [0024])

Regarding claims 7, 18 and 21, Hirano et al. discloses hydrophilization processing can be carried out by carrying out the graft of the hydrophilic molecule to the grafted cellulosic fiber or cellulosic fiber product of a hydrophilic molecule. As a hydrophilic molecule, hydrophilization processing can be carried out by carrying out the graft of the vinyl system copolymer of methacrylamide. The hydrophilic monomer can be a methacrylic acid or methacrylamide. (See [0038]-[0039] and [0047]-[0048])

Regarding claims 8, 19 and 22, Hirano et al. discloses a hydrophilic molecule carries out a graft, and the rate of a graft is 2% or more preferably, and is 20% or less still more preferably 25% or less preferably 30% or less 1% or more. (See [0041] and [0047])

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Regarding claims 17 and 20, as set forth above examiner has reason to believe that the textile fabric of Soane would be exposed to grease, soil, and oily substances hence the suggestion of an grease repellency, soil resistance, and an oil repellent finish by Soane et al. Examiner also notes that the detergent free washing is clearly provided for by the Soane et al. prior art. Soane et al. further discloses using hydrophobic/oleophobic groups capable of repelling water/soil for example, free hydroxyl groups can be converted to carboxylates with reagents such as chloroacetic acid or succinic anhydride and activation with chloroacetic acid followed by reaction with a nucleophilic alkyl, such as an alkyl amine, alkyl alcohol, or alkyl thiol, in the presence of a catalyst. (Col 14, lines 21-34) Examiner notes the use of chloroacetic acid in forming the Soane polymers. However, Soane et al. does not explicitly teach monochloroacetic acid to aid in heat treatment.

Hirano et al. discloses heat treatment temperature can be 60°C or more and can usually be less than 40°C. although the concentration of the alkali-metal salt of the monochloroacetic acid should just set the conditions of processing liquid that the target workability is obtained suitably can be 100 or more g/l preferably. A sodium hydroxide can be used for the processing liquid in which a cellulosic fiber or a cellulosic fiber product is contacted at the hydroxide of alkali metal, and a concrete target. Reactivity tends to go up and usually needs to make NaOH concentration 20 or more g/l. (See [0031-0035]) Hirano et al. discloses hydrophilization processed cheesecloth obtained by immersion of the hydrophilization treated cloth in a solution of artificial sweat which includes oleic acid and gelatin. (See [0052]) Examiner notes that applicant relies on the

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results of Table 1 at page 25 for support for the claim limitation of the remaining ratio of 10 to 42%. (See remarks pg. 10) As such, examiner further notes that there is substantial similarity in the examples of the instant application and the Hirano et al. prior art. (See [0053]-[0054] and [0050]-[0053], respectively) Therefore, with there being no recited unexpected results, examiner has reason to believe that the limitations as claimed by applicant are prima facie obvious in view of the prior art.

One of ordinary skill in the art would have been easily motivated at the time of the invention to utilize the monochloroacetic acid and heating process as taught by Hirano et al. in the process as disclosed by Soane et al. in order to better tailor workability during the treatment of the fiber or fabric.

The modified Soane et al. reference does not explicitly disclose the specific time duration of 6 to 48 hours for contact with the treatment solution. Since the instant specification is silent to unexpected results, specific time duration of contact with solution is not considered to confer patentability to the claims. As the degree of solvency is a variable that can be modified, among others, by adjusting the time of contact with treatment solution, the precise time duration of said contact would have been considered an obvious modification by one having ordinary skill in the art at the time the invention was made. In the instant case, Hirano does disclose that the cheesecloth was immersed in the water solution (processing liquid) of monochloroacetic acid sodium hydroxide, heating at 60°C and performing processing for 1 hour. (See [0050]) As such, without showing unexpected results, the claimed time duration cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would

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have optimized, by routine experimentation, the amount of time for the contact of cellulose fiber with treatment solution for the purpose of achieving desired degree of solvency, since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALTREV C. SYKES whose telephone number is (571)270-3162. The examiner can normally be reached on Monday-Thursday, 8AM-5PM EST, alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

/ACS/
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